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PHYTOCHEMICAL AND PHYSICOCHEMICAL ANALYSIS OF SIDDHA HERBAL PREPARATION- KATRALAIYATHI THYLAM

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ABSTRACT

In our daily lives, we come into contact with several diseases that have an impact on human health.Stomatitis is a disease that can afflict anyone from newborns to the elderly.This can be caused by a number of things, such as poor dental hygiene, allergies, infections, or drug use, as well as systemic diseases.This oral disease is rather common.20% frequency in the general population has been reported.There is also a cluster of oral ulcers, which are typically on the inside of the lip. The symptoms of stomatitis include ulcers, redness, swelling, and intermittent bleeding from the affected area.Immunocompromised persons are susceptible to it easily.In the treatment of Akkaram, katralaiyathi thylam is essential medication under test. The multiherbal formulation KATRALAIYATI THYLAM is referenced on page 66 of the Siddha text "Theraiyar Anthathi." Stomatitis is treatable.The oil of this formulation was subjected to Physicochemical study and Phytochemical analysis

KEYWORDS: Akkaram (Stomatitis), Katralaiyathi Thylam, Physicochemical Analysis, Phytochemical Analysis

INTRODUCTION

Siddha medicine is one of the oldest forms of traditional medicine.According to the Siddha system, every human being is composed of 96 thathuvas, or basic principles. A unique form of medicine called the Siddha system is used to cure a wide range of illnesses and maintain general health. Siddha medicine is addressing a number of modern health challenges. The traditional siddha system, which provides a wealth of information regarding the diagnosis, treatment, and management of illnesses like stomatitisStomatitis is one of the most common painful ulcerative lesions of the oral mucosa that can significantly lower a patient's quality of life. This illness is associated with certain pathological issues and presents clinically as elliptic or circular recurring lesions in the oral mucosa. Redness, pain, swelling, and ulcers on the tongue, lips, soft palate, and hard palate are symptoms of stomatitis. Teraiyar anthathi mentions nine natural herbs that are used to make katralaiyathi thylam, a herbal oil used to treat akkaram (stomatitis).

MATERIALS AND METHODS

Preparation of the drug

Ingredients

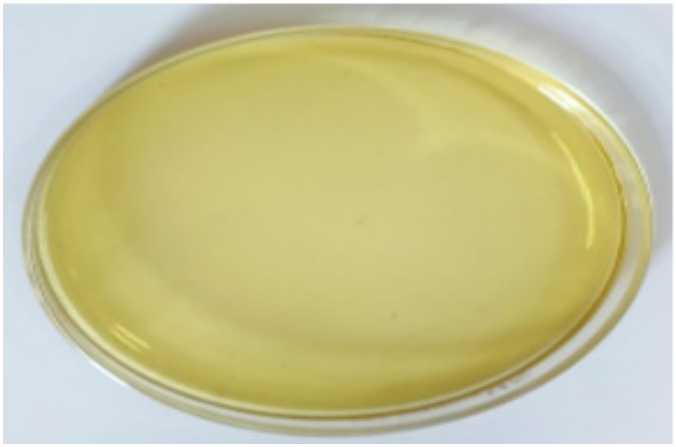
1. Katralai (Aleo barbedensis)-500gms
2. Erulli (Allium cepa)-500 gms
3. Vendhayam (Trigonella foenum graecum)-500gms
4. Manathakali (Solanum nigrum) -500gms
5. Agathi(Sesbania grandiflora)-500gms
6. Thuthi(Abutilon indicum)-500gms
7. Varatpulla (Flueggea leucopyrus)-500gms
8. Mutkarai (Canthium coromandelicum) -500gms
9. Aamanaku (Ricinus communis)-500ml

Purification of Rawdrugs

Raw drug are purified as mentioned in Sikicharatna deepam, saraku suthi muraikal.

Methods of Preparation

All the 8 raw drugs are added to be in the oil and boiled up to adequate consistency and stored in a air tight container.



Katralaiyathi Thylam

State	Liquid
Nature	Viscous
Odor	Strong Characteristic
Touch / Consistency	Greasy
Flow Property	Free Flowing
Appearance	Pale Yellowish

Physicochemical Analysis

S.No	Solvent Used	Solubility / Dispersibility
1	Chloroform	Soluble
2	Ethanol	Insoluble
3	Water	Insoluble
4	Ethyl acetate	Soluble
5	DMSO	Insoluble

Solubility Profile

Determination of Iodine value

About 20 gm weight equivalent of test sample was transferred into Iodine flask. To which 10 ml of chloroform was added and warmed slightly and cooled for 10 minutes. Followed by this about 25 ml of Wiji's solution was added in the same flask and shaken well. The flask was allowed to stand for 30 mins and refrigerated for an hour.T About 10 ml of KI solution was added to this and titrated against 0.1 N Sodium thiosulphate solutions until the appearance of yellow colour. 1 ml of starch indicator was added and again titrated against the sodium thiosulphate solution from the burette. Disappearance of blue colour indicates end point. Repeat the above procedure without taking sample and note the corresponding reading for blank titration.

Determination of saponification value

About 2 gm weight equivalent of test sample was transferred into the round bottomed flask. To this about 20 ml of 0.5 N alcoholic KOH solutions was added to the round bottomed flask. Repeatthe same procedure without taking the sample for blank titration. Reflux both sample and blank round bottomed flasks for 1 hour. After reflux, allow both the round bottomed flasks to cool. Titrate the samples using 0.5 N HCl with phenolphthalein indicator. The disappearance of pink indicates the end point.

Determination of Viscosity value

Viscosity determination were been carried out using Ostwald viscometers. Measurement of viscosity involves the determination of the time required for a given volume of liquid to flow through a capillary. The liquid is added to the viscometer, pulled into the upper reservoir by suction, and then allowed to drain by gravity back into the lower reservoir. The time that it takes for the liquid to pass between two etched marks, one above and one bellow the upper reservoir, is measured.

Determination of Refractive Index

Determination of RI was carried out using Refractometer.

Determination of Weight per ml

Weight per ml was determined using the comparative weight calibration method, in which the weight of 1ml of the base of the formulation was calculated and then weight of 1 ml of finished formulation were been calculated. The difference between weight variations of the base with respect to finished formulation calculated as an index of weight per ml.

Acid Value

Accurately 5 g weight equivalent of the test sample was weighed and transferred into a 250 mL conical flask. To this, a 50 mL of neutralized alcohol solution was added. This mixture was heated for 10 min by heating mantle. Afterwards, the solution was taken out after 10 min and 1 or 2 drops of phenolphthalein indicator was added. This solution was titrated against KOH solution from the burette. The appearance of pink color indicated the end point. The volume of consumed KOH solution was determined and the titration of test sample was carried out in triplicate and the mean of the successive readings was used to calculate the acid-value of the respective sample by following expression.

Acid value = Titter Value X 0.00561X 1000 / Wt of test sample (g)

Peroxide value

5 g weight equivalent of the substance being examined, accurately weighed, into a 250-ml glass-stoppered conical flask, add 30 ml of a mixture of 3 volumes of glacial acetic acid and 2 volumes of chloroform, swirl until dissolved and add 0.5ml volumes of saturated potassium iodide soluton. Allow to stand for exactly 1 minute, with occasional shaking, add 30 ml of water and titrate gradually, with continuous and vigorous shaking, with 0.01M sodium thiosulphate until the yellow colour almost disappears. Add 0.5 ml of starch solution and continue the titration, shaking vigorously until the blue colour just disappears (a ml). Repeat the operation omitting the substance being examined (b ml). The volume of 0.01M sodium thiosulphate in the blank determination must not exceed 0.1 ml.

Phytochemical Analysis

Test for alkaloids:

Mayer's Test: To the test sample, 2ml of mayer's reagent was added, a dull white precipitate revealed the presence of alkaloids.

Test for coumarins:

To the test sample, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow color.

Test for saponins:

To the test sample, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

Test for tannins:

To the test sample, ferric chloride was added, formation of a dark blue or greenish black color showed the presence of tannins.

Test for glycosides- Borntrager's Test

Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2 ml of filtered hydrolysate, 3 ml of choloroform is added and shaken, choloroform layer is separated and 10% ammomia solution is added to it. Pink colour indicates presence of glycosides.

Test for flavonoids:

Alkaline reagent test. Two to three drops of sodium hydroxide

were added to 2 mL of extract. Initially, a deep yellow colour appeared but it gradually became colourless by adding few drops of dilute HCL, indicating that flavonoids were present.

Test for phenols:
Lead acetate test: To the test sample; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

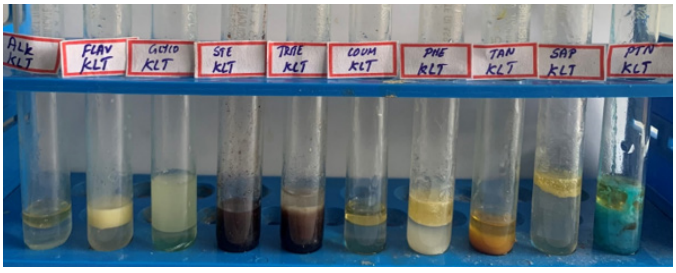
Test for steroids:
To the test sample, 2ml of chloroform was added with few drops of conc. Sulphuric acid (3ml), and shaken well. The upper layer in the test tube was turns into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

Triterpenoids
Liebermann–Burchard test: To the chloroform solution, few drops of acetic anhydride was added then mixed well. 1 ml concentrated sulphuric acid was added from the sides of the test tube, appearance of red ring indicates the presence of triterpenoids.

Test for Cyanins
A. Aanthocyanin:
To the test sample, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100^0C. Formation of bluish green colour indicates the presence of anthocyanin.

Test for Carbohydrates - Benedict's test
To the test sample about 0.5 ml of Benedic's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic coloured precipitate indicates the presence of sugar.

Proteins (Biuret Test)
To extracts 1% solution of copper sulphate was added followed by 5% solution of sodium hydroxide, formation of violet purple colour indicates the presence of proteins.



Results
Qualitative Phytochemical Investigation

RESULTS AND DISCUSSION

As the physiochemical, phytochemical, and bioactive component profiles of the Siddha formulations become apparent, standardization is becoming increasingly important. The physicochemical analysis of Katralaiyathi thylam includes viscocity 86.36(Pa S), Refractive index 1.42, weight 0.87 gm/ml, Iodine value 86.36(mgI2/g), Saponification value 180.45, Acid value 0.897mg KOH, Peroxidase value 3.276 mEq/H. In phytochemical analysis steroids, triterpenoids, Saponin, Betacyanin are present in Katralaiyathi thylam

S.No	Parameter	KLT
1	Viscosity at 50oC (Pa s)	86.36
2	Refractive index	1.42
3	Weight per ml (gm/ml)	0.87
4	Iodoine value (mg I2/g)	86.36
5	Saponification Value (mg of KOH to saponify 1gm of fat)	180.45
6	Acid Value mg KOH/g	0.897
7	Peroxidase Value mEq/kg	3.276

Physicochemical Analysis

S.no	Test	Observation
1	Alkaloids	-
2	Flavanoids	-
3	Glycosides	-
4	Steroids	+
5	Triterpenoids	+
6	Coumarin	-
7	Phenol	-
8	Tanin	-
9	Protein	-
10	Saponins	+
11	Sugar	-
12	Anthocyanin	-
13	Betacyanin	+

(+) -> Indicates Positive and (-) -> Indicates Negative

CONCLUSION

This Analytical study reveals the standardization of Katralaiyathi thylam and having medicinal values due to the presence of secondary metabolites.From this fundamental research,additional preclinical and clinical evaluation should be done for further consumption of Katralaiyathi thylam.

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